THE AUSTRALIAN PLANT DISEASE RECORDER

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For private circulation to plant pathologists within Australia.

COMMONWEALTH MYCOLOGICAL INSTITUTE
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PLANT DISEASE NOTES

VEGETABLES.

VIRUS FROM SILVER BEET PLANTS:

A mosaic disease of silver beet (Beta vulgaris var.cicla) has been recognised for some years in New South Wales but its relationship to other recorded virus diseases has not been worked out.

Recently specimens of silver beet (var. Dark Green Broad Ribbed) submitted from Carlingford in the Sydney Metropolitan Area were showing symptoms similar to those described for sugar beet mosaic (Severin & Drake, Hilgardia 18:13:483-521; Pound, J. Agric. Res. 75: 1: 31-41.) The virus has been transferred to red beet (Beta vulgaris and fat hen (Chenopodium album) producing on these plants, symptoms similar to those described for sugar beet mosaic. Further work is in progress.

Department of Agriculture,
Sydney.

- R.J. CONROY

INTERNAL NECROSES OF TOMATO FRUIT:

Internal blossom end rot of tomato fruit is not uncommon in the Sydney Metropolitan Area; but from time to time internal necroses which are located in tissues not usually associated with that condition are encountered. In most instances unidentified viruses, resembling the single streak of tomato virus in their reaction on test plants, have been associated.

In March this year an internal necrosis which differed from the above in being free of virus transmissable by mechanical means was encountered in two neighbouring crops at Peat's Ridge, near Gosford. The variety affected was Q2, reputed to be a strain of Grosse Lisse. Necrosis occurred as a brown dry area located centrally on the surface of the gelatinous matter embedding the seeds. One or more locules were involved. In severe cases the outer wall of the fruit, immediately opposite the affected pulp, also developed a dry brown necrosis.

Both crops were waterlogged a few weeks after being transplanted and the root systems were unthrifty and very restricted in development. It has been concluded that the hot dry conditions which followed the flooding were responsible for the breakdown of the tissue.

Department of Agriculture,
Sydney.

- W.S. SUTTON

FRUIT

SUSPECTED VIRUS DISEASES OF STONE FRUITS IN VICTORIA:

Peaches.

The condition on J.H. Hale peaches in the Orange district of N.S.W. with symptoms suggestive of rosette mosaic (A.P.D.R. 6:1:9) has been observed in Victoria since the 1949-50 season. The disease occurs in the Goulburn Valley on the varieties Levis, Pullars Cling, and Golden Queen. In February 1952, buds from severely and mildly affected trees from Shepparton East and Toolamba were inserted in seedling stocks. In most instances the rosette symptoms were reproduced in the following spring. Symptoms have recurred on these trees in each successive season. On one block at Shepparton East the condition was first noticed by the grower on two or three trees, following a heavy infestation of aphids. Subsequent spread has been rapid on this block. Early season symptoms are typical of those described in the U.S.A. for rosette mosaic. Many trees are now severely affected, and a number of limbs on such trees has died.

In the Shepparton East area the disease is mainly restricted to one orchard. However, it has been recognized and is causing some concern to growers in the nearby Kyabram district.

Nectarines.

A decline condition of Goldmine nectarine has been known in Victoria for some years. In July, 1952, affected trees were inspected at Bacchus Marsh. The trees which were on peach stock, were planted in 1938, on a fertile alluvial soil with excellent drainage. They commenced to decline in 1949. The first symptoms appeared on single branches which subsequently died. The wood was not brittle as with fungal attack. One apparently healthy branch on a severely affected tree proved, on closer examination, to have arisen from the peach stock.

An adjacent row of nectarines, of the variety Newboy, which is virtually indistinguishable from Goldmine, was unaffected.

Cherries.

1. Tatterleaf symptoms were observed last season on odd trees of the variety Bedford grown at Merricks N. According to the grower the condition recurs on these trees each season.

2. Black Canker. This condition occurs on the variety Florence. Symptoms are identical with those described for the black canker disease of Napoleon cherry in the U.S.A. (U.S.D.A. Agricultural Handbook 10:137).

Plums and Apricots.

Mosaic in plums and apricots is common in Victorian orchards. It is believed that the disease, on both hosts, is caused by the "line-pattern" virus (U.S.D.A. Agricultural Handbook 10:177).

Department of Agriculture, -L.L. STUBBS & P.T. JENKINS
Melbourne.

BLACK SPOT OF APPLES:

I read with interest the comments made by Mr. K.E. Hutton on the Control of Black Spot of Apples and Pears, which appeared in the last issue of A.P.D.R., Vol. 6, No. 1, p. 7. Mr. Hutton's investigations confirm observations made at Templestowe, Victoria, during the 1952 season, when a plot of Rome Beauty apples, known to be heavily infected with Venturia inaequalis, was selected as a suitable site for making a study of ascospore discharge.

At approximately weekly intervals, from mid-August until the end of the spring in 1952, fallen overwintered leaves were collected and tested for ascospore discharge.

When ascospore ejection failed to take place from leaves collected at the experimental plot on September 22nd, it was ascertained that these trees had been sprayed with phenyl mercury chloride, in December 30th, 1951. A commercial preparation containing 2.5% phenyl mercury chloride was used at the rate of 2 lbs. 100 gallons water.

Control observations commenced on September 23rd, were made on overwintered leaves from Rome Beauty trees growing in a neighbouring property at Templestowe, and an abundant discharge of ascospores was obtained from these leaves.

Collections of leaves were made from both properties at approximately weekly intervals until November 14th, 1952. Ascospore discharge was not observed in any leaves where phenyl mercury chloride had been sprayed, but in leaves from the neighbouring property, abundant ascospore discharge occurred, as late as October 13th, 1952.

Department of Agriculture, Melbourne. - EILEEN E. FISHER.

APPLE MOSAIC:

With the extension of apple growing into the Goulburn and Murray Valley areas of Victoria, it has been observed that the symptoms of apple mosaic occur in a more severe form. It is not uncommon for leaves on young infected trees to be completely white.

It would appear, therefore, that symptom expression is favoured by high temperature conditions. This observation may facilitate the selection of healthy stocks for bud certification purposes.

Department of Agriculture, Melbourne. - L.L. STUBBS & P.T. JENKINS

ENATION VIRUS DISEASE OF CITRUS:

The enation virus disease of citrus recently described by Wallace & Drake (Calif. Citrogr. 38:5:180-181,1953) in California and by McClean in South Africa (South Afr. J. Sci., 50: 6: 147-151, 1954) has been found on a number of occasions in New South Wales. It appears to be fairly widespread but not common, and as in California and South Africa, no detrimental effect on the infected trees can be traced to its presence. Rough lemon seedlings show the condition most clearly.

Several recent importations of buds, namely Norris Early orange from South Africa, and Frost Nucellar Eureka and Frost Nucellar Lisbon lemons from California were found to carry this virus. It was noticeable that onations on rough lemon test plants inoculated from these sources formed more freely than when the inoculum was from local sources.

Department of Agriculture, Sydney. - LILIAN R. FRASER

CRINKLY LEAF PSOROSIS OF LEMONS:

This virus disease has not been previously recognised in N.S.W.

A few trees of three varieties of lemon (Chegwyn's Lisbon, Villa Franca and Belair) at Narara Citrus Research Station this autumn showed symptoms in young growth and in fruit. Nursery trees worked from them in autumn 1953 show the same symptoms. The trees form part of a lemon stock and variety trial and all trees of each variety represented were propagated from buds from single trees. Since the majority of these trees are unaffected it would appear likely that the disease has been introduced from an outside source by an insect vector.

Department of Agriculture, Sydney. - LILIAN R. FRASER.

THE "BURROWING" NEMATODE ON BANANA IN THE NORTHERN TERRITORY:

Diseased banana roots from the C.S.I.R.O. Field Station, Katherine (N.T.) were found to be heavily infected with the "burrowing" nematode Radopholus similis (Cobb) Thorne. The nemas were associated with dark-coloured lesions in the cortex and were not present in the vascular tissues. Both males and females were present and their body measurements were similar to those noted by overseas workers. This is the first record of this important root parasite of tropical and sub-tropical plants from Australia.

C.S.I.R.O., Applethorpe, Queensland. - R.C. COLBRAN.

A ROOT LESION NEMATODE OF PINEAPPLES IN QUEENSLAND:

Diseased pineapple roots submitted for examination by the Queensland Department of Agriculture and Stock were heavily infested with females of the root lesion nematode Pratylenchus brachyurus Godfrey. Lesions containing the nematode were evident on the young roots and the root systems were showing signs of breakdown following heavy rains although no disease symptoms were in evidence on the aboveground parts. P. brachyurus was described from diseased pineapple roots at Hilo, Hawaii and the dimensions of the Queensland specimens agree closely with those of the topotype. Males of this species are extremely rare.

C.S.I.R.O.,
Applethorpe, Queensland. - R.C. COLBRAN.

ORNAMENTALS.

A DISEASE OF GARDEN STOCKS:

A disease of garden stocks (Matthiola incana R.Br.), in the Brisbane district is caused by Glomerella cingulata (Stonem.) Spauld, and von Schrenk. Pale papery lesions are formed on the leaves of affected plants, hence the name "paper spot" which is applied to the disease.

The leaf lesions are similar in appearance on both surfaces of the leaf, have sunken margins and vary in size from pin-point spots to rounded sometimes irregular lesions up to 5 mm. across, or becoming confluent on severely attacked leaves. The mesophyll tissue may be partially or completely destroyed, its place being taken by fungal hyphae, but the epidermis with the epidermal hairs is still intact and the vascular tissue is not destroyed. Lesions on the midrib, petiole and stem are light brown and sunken. No lesions have been observed on the flowers.

Only the conidial state of Glomerella cingulata has been observed on the host plant. The conidia are borne in acervuli, and are held together in mucilaginous masses. Setae are formed in association with the acervuli. Perithecia have been found in culture. Different strains of the fungus, both conidial and perithecial, have been grown in pure culture and are found to differ in cultural characters.

Spread of the disease is greatest during the hot wet months of March and April when the host plants are in the seedling stage. If similar conditions prevail later in the season larger plants are just as susceptible to attach as the seedlings. However, by the time the plants have reached the flowering stage danger from attach by the fungus is lessened due to the cooler, drier atmospheric conditions usually prevailing between July and September.

Botany Department,
University of Queensland.

- DAPHNE J. MATTHEWS.

GLOMERELLA CINGULATA ON AZALEA:

A leaf spot on Azalea (Rhododendron indicum) was noticed in Brisbane in July 1951. The leaf lesions were irregular, 4-10 mm. across, dark brown on the upper surface and light brown on the lower surface. The leaf symptoms were associated with a heavy fall of leaves and a definite retardation in growth. The causal organism was found to be Glomerella cingulata, with the conidial state developing on the host and in culture and the perithecial state being seen in culture.

Botany Department,
University of Queensland.

- DAPHNE J. MATTHEWS.

A LEAF SPOT OF HOYA AUSTRALIS, R. BR:

A leaf spot on Hoya australis R. Br. attributed to Gloeosporium intermedium Sacc. was recorded from Queensland by Cooke (Handbook of Australian Fungi) and Bailey (Comprehensive Catalogue of Queensland Plants 1912). In 1952 a leaf spot on this host, in the Brisbane district was investigated. A conidial state referable to Gloeosporium was found on the host. After isolation and growth in pure culture the perithecial state was obtained and the fungus identified as Glomerella cingulata (Stonem.) Spauld. & von Schrenk. A search for Bailey's specimen was made but it is not in the Queensland Herbarium, the Royal Botanic Gardens Herbarium, Kew, or the Herbarium of the British Museum of Natural History. It must therefore be considered lost.

Gloeosporium intermedium, Sacc. was originally described from Citrus in Europe. The only specimen of G. intermedium that I have examined is in the Herbarium of the British Museum of Natural History. The host plant is Cinnamonum camphora Nees and Eberm. from Sicily. Macroscopically this lesion is similar to the lesion caused by Glomerella cingulata on Hoya australis.

Saccardo has described three other species of Gloeosporium from Hoya in the Botanic Gardens at Padua in Italy and two of these include Citrus in their host range (fide Saccardo). There must be grave doubt as to whether G. intermedium is the leaf spot fungus of Hoya in Queensland and the recent record of Glomerella may be an indication of the fungus present on the specimen referred to by Cooke.

Botany Department,
University of Queensland.

- DAPHNE J. MATTHEWS.

ANTIRRHINUM RUST IN AUSTRALIA:

The following summary shows the rapidity of the spread of Puccinia antirrhini D. & H. in Australia.

The disease was first found at Willoughby (Sydney) in October 1952. By mid-November it had spread to several other suburbs of Sydney; by February 1953 it had been recorded at Windsor, Glenbrook, Penrose and Wollongong; by April at Queanbeyan and Cooma, also at Canberra and suburbs of Melbourne. In the spring of 1953 it had reached Brisbane. In January 1954 it was recorded at Adelaide and by March in several areas around Adelaide e.g. Sterling and Roseworthy. In March the disease was found at Launceston, Flinders Island and Hobart in Tasmania.

Department of Health, Canberra. - T.H. HARRISON.

ANTIRRHINUM RUST IN SOUTH AUSTRALIA:

Puccinia antirrhini has now been recorded in Adelaide, causing severe symptoms in snapdragons.

Waite Agricultural Research Institute, Adelaide. - C.G. HANSFORD

ANTIRRHINUM RUST IN TASMANIA:

Antirrhinum rust was first recorded in Tasmania on 9/2/54 in a suburb of Launceston. It was found on investigation, that the disease had already become firmly established in several scattered areas, and it appears that it had been present in some properties for about four weeks.

The next record was from Flinders Island on March 2nd, on plants which had been purchased as seedlings in Launceston. On March 16th the disease was detected in two widely separated suburbs of Hobart, on plants purchased locally or grown from seed. It therefore appears that it may have spread to Hobart by natural means rather than on introduced infected seedlings.

Department of Agriculture, Hobart. - G.C. WADE.

MISCELLANEOUS NOTES

A DISEASE OF MUSHROOM NEW TO NEW SOUTH WALES:

Specimens of cultivated mushrooms Psalliota campestris (Linn.) Fr., recently submitted by a commercial grower at Helensburgh in the Sydney Metropolitan area were found to be affected with "mildew" or cob web disease caused by the fungus Dactylium dendroides Fr. This represents the first record of this disease in New South Wales. The symptoms of the disease were similar to those described and illustrated by Atkins, "Major Diseases and Competitors of the Cultivated White Mushroom" (W. Maney & Sons., Leeds, 1949).

The fungus had probably been introduced into the trays, which were located in a tunnel, by means of contaminated casing soil. Infection was limited to small isolated spots in individual trays. Immediate removal of affected mushrooms and spraying the casing soil in the area with 4% formalin had been necessary to prevent spread of the disease under the relatively humid conditions associated with indoor mushroom culture.

Generally in New South Wales, fungous diseases of mushroom contribute little to yield reduction. This is considered to be due to the fact that about 90% of the mushrooms produced are grown in outdoor ridge beds where prolonged high humidity and poor ventilation are unlikely to occur. Apart from the present record, an occasional infection of bubbles (Mycogone perniciosa) and brown spot Verticillium sp.) are the only records of fungous diseases of mushrooms in this State.

Department of Agriculture,
Sydney.

- R.J. CONROY

COMMONWEALTH MYCOLOGICAL INSTITUTE NOTES

FIFTH COMMONWEALTH MYCOLOGICAL CONFERENCE:

A provisional programme for this conference, which will be held at the Imperial College of Science and Technology, South Kensington, from 16-23 July next has been received. Among the topics listed for discussion and on which there will be contributed papers are the following :-

Plant disease legislation against seed borne diseases.

Losses caused by plant diseases.

Cereal rusts and their control.

Eradication or attempted eradication of diseases.

Fungicides.

Tobacco disease problems in Southern Rhodesia. Oil palm diseases in Nigeria. Control of black pod of cacao.

Virus diseases:

(a) Stone fruit viruses in Canada.

(b) Virus diseases in fruit trees in New Zealand.

(c) Streak mosaic of wheat in Canada.

(d) Tristeza in New Zealand.

(e) Lime die-back in the Gold Coast.

(f) Stunting disease of sugar-cane.

I shall attend the Conference as an Australian delegate. Should any plant pathologist wish me to raise any matter at the Conference on their behalf, I would be glad of advice prior to May 31st, the date of my departure for London.

A paper has been prepared for the Conference by Mr. C.G. Hughes on the eradication of sugar diseases in

Queensland. I shall contribute a paper on the eradication of certain other diseases from Australia, e.g. citrus canker in Northern Territory, boil smut of maize in New South Wales, black spot of apple in Western Australia, bunchy top of bananas in New South Wales and Queensland, and cherry leaf spot in New South Wales.

Department of Agriculture,
Sydney.

- C.J. MAGEE,

C.M.I. Official Correspondent.